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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,206	07/08/2008	Takeshi Nakamura	36856.1425	4643

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MURATA MANUFACTURING COMPANY, LTD.  
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EXAMINER
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JOSHI, SUNITA

ART UNIT	PAPER NUMBER
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2614

NOTIFICATION DATE	DELIVERY MODE
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07/21/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/595,206	<b>Applicant(s)</b> NAKAMURA, TAKESHI	
	<b>Examiner</b> SUNITA JOSHI	<b>Art Unit</b> 2614	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/23/06, 05/09/06, 12/12/2007, 12/02/2008</u> .              | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because more than one paragraph has been included. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1- 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA), in view of Akitaro Nakahira (GB 2087688 ).**  
**References to AAPA herein refer to the instant applications Pre-Grant Publication ( US 2008260186A1)**

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**As to Claim 9**, AAPA teaches *a speaker comprising* (Figure 11 #1):

*a diaphragm arranged to vibrate in a direction extending along a surface of the speaker so as to emit sound waves in a vibration direction of the diaphragm* ( diaphragm 6 vibrating back and forth. See at least Figure 11, page 1 lines 12-19 in applicant's specification) , but do not explicitly teach:

*at least one wall member arranged on a sound-wave emission side of the diaphragm; wherein*

*the at least one wall member and the diaphragm are secured to each other, and the wall member vibrates along with the vibration of the diaphragm.*

However, Akitaro in related field (Speaker device) teaches a diaphragm for a loudspeaker having body 1 and fitting portion 2, joined to the outside periphery of the body 1 of diaphragm. See at least Akitaro on page 4 lines 15-29, Figure 1, 2. Akitaro further teaches *at least one wall member arranged on a sound-wave emission side of the diaphragm* (as radial ribs 5a or concentrically circular ribs 5b arranged on the body 1 of the diaphragm. See at least Figures 6, 7, 10, 13-19, 23 and 24); *wherein*

*the at least one wall member and the diaphragm are secured to each other, and the wall member vibrates along with the vibration of the diaphragm* ( as ribs 5a and 5b provided on the body 1 of the diaphragm. This teaches the ribs are integrally formed with the diaphragm and therefore secured to the diaphragm, thus vibrating along with the vibration of diaphragm). At the time of invention, it would have been obvious to one of ordinary skill in the art to include ribs onto the body of the diaphragm so as to provide

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improve tone quality of the reproduced sound. See at least Akitaro on page 4 lines 41-50.

**As to Claim 10**, Akitaro teaches the limitations of Claim 9, and *the inner surface of the at least one wall member is arranged substantially parallel to the vibration direction of the diaphragm* ( as ribs 5b see at least Figure 10) .Further, as shown in Figure 14, 15 the ribs 5a and 5b have inner surfaces parallel to body 7.)

**Claim 11**, AAPA in view of Akitaro teaches the limitations of Claim 9, and *the at least one wall member includes a frame surrounding the sound-wave emission side of the diaphragm* ( # 5a, Figure 7)

**Claim 12**, AAPA in view of Akitaro teaches the limitations of Claim 9, and *the at least one wall member has a cross-sectional shape that is substantially the same as a shape of a rim of the sound-wave emission surface of the diaphragm* (as concentrically circular ribs 5b which is same as the circular fitting portion 2 of the diaphragm. See at least Figure 6)

**As to Claim 13**, AAPA in view of Akitaro teaches the limitations of Claim 9, and *the at least one wall member includes a plurality of wall members that are arranged*

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*concentrically with respect to a center of the diaphragm ( as ribs 5b as shown in Figure 10)*

**As to Claim 14**, AAPA in view of Akitaro teaches the limitations of Claim 9, and also shows in Figure 18, 19 ribs 5b extends on the body 7 towards the fitting portion 8. See at least page 5 lines 85-100), but do not explicitly teach

*a height of the at least one wall member is substantially the same as a maximum amplitude of the diaphragm*. However, the examiner considers that it would have been obvious matter of design choice to provide ribs with *similar height configuration to the maximum amplitude of the diaphragm* because it has been held that changing the size is a matter of obvious design choice to a person of ordinary skill in the art. See at least In re Dailey, 149 USPQ 47.

**As to Claim 15**, AAPA teaches *a speaker comprising* (Figure 11 #1):

*a diaphragm arranged to vibrate in a direction extending along a surface of the speaker so as to emit sound waves in a vibration direction of the diaphragm ( diaphragm 6 vibrating back and forth. See at least Figure 11, page 1 lines 12-19 in applicant's specification) , but do not explicitly teach:*

*a plurality of tubular elements touching and arranged side by side on a sound- wave emission side of the diaphragm, each of the plurality of tubular elements having an inner surface extending substantially parallel to a vibration direction of the diaphragm; wherein*

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*the plurality of tubular elements and the diaphragm are secured to each other, and the plurality of tubular elements vibrate along with the vibration of the diaphragm.*

However, Akitaro in related field ( Speaker) teaches *a plurality of tubular elements touching and arranged side by side on a sound- wave emission side of the diaphragm, ( as radial ribs 5a and concentrically circular ribs 5b provided on body 7 as shown in Figure 13. Further, each of the plurality of tubular elements having an inner surface extending substantially parallel to a vibration direction of the diaphragm ( as shown in Figure 14, 15 the ribs 5a and 5b have inner portion parallel to the body 7) ; wherein the plurality of tubular elements( ribs 5a and 5b) and the diaphragm( diaphragm Figure 13, 14, 15 with body 7 and fitting portion 8) are secured to each other, and the plurality of tubular elements vibrate along with the vibration of the diaphragm.* Since Akitaro teaches the ribs 5a and 5b are provided on the body 1 of the diaphragm, it is obvious that the ribs are integrally formed with the diaphragm and therefore secured to the diaphragm, thus vibrating along with the vibration of diaphragm). At the time of invention, it would have been obvious to one of ordinary skill in the art to include ribs onto the body of the diaphragm so as to provide improve tone quality of the reproduced sound. See at least Akitaro on page 4 lines 41

**As to Claim 16**, AAPA in view of Akitaro teaches the limitations of Claim 15, and also shows in Figure 18, 19 ribs 5b extends on the body 7 towards the fitting portion 8. See at least page 5 lines 85-100), but do not explicitly teach

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*wherein a height of each of the plurality of tubular elements is substantially the same as a maximum amplitude of the diaphragm.* However, the examiner considers that it would have been obvious matter of design choice to provide ribs with *similar height configuration to the maximum amplitude of the diaphragm* because it has been held that changing the size is a matter of obvious design choice to a person of ordinary skill in the art. See at least *In re Dailey*, 149 USPQ 47.

**As to Claim 17**, AAPA teaches *a speaker unit ( 1, Figure 11) comprising: a cabinet including a surface having an opening therein ( Figure 11, # 2 , page 1 [0005]); a speaker ( woofer 3, Figure 11) attached to an inner side of the surface and aligned with the opening ( as speaker 3 attached to the duct 10 which extends inwardly from the front panel of the cabinet 2. See at least page 1 [0005]); wherein the speaker includes: a diaphragm arranged to vibrate in a direction extending along a surface of the speaker so as to emit sound waves in a vibration direction of the diaphragm; ( diaphragm 6 vibrating back and forth. See at least Figure 11, page 1 lines 12-19 in applicant's specification) , but do not explicitly teach: at least one wall member arranged on a sound-wave emission side of the diaphragm; wherein the at least one wall member and the diaphragm are secured to each other, and the wall member vibrates along with the vibration of the diaphragm.*



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However, Akitaro in related field (Speaker device) teaches a diaphragm for a loudspeaker having body 1 and fitting portion 2, joined to the outside periphery of the body 1 of diaphragm. See at least Akitaro on page 4 lines 15-29, Figure 1, 2. Akitaro further teaches *at least one wall member arranged on a sound-wave emission side of the diaphragm* (as radial ribs 5a or concentric circular ribs 5b arranged on the body 1 of the diaphragm. See at least Figures 6, 7, 10, 13-19, 23 and 24); *wherein the at least one wall member and the diaphragm are secured to each other, and the wall member vibrates along with the vibration of the diaphragm* ( as ribs 5a and 5b provided on the body 1 of the diaphragm. This teaches the ribs are integrally formed with the diaphragm and therefore secured to the diaphragm, thus vibrating along with the vibration of diaphragm). At the time of invention, it would have been obvious to one of ordinary skill in the art to include ribs onto the body of the diaphragm so as to provide improve tone quality of the reproduced sound. See at least Akitaro on page 4 lines 41-50.

**As to Claim 18**, Akitaro teaches the limitations of Claim 17, and *the inner surface of the at least one wall member is arranged substantially parallel to the vibration direction of the diaphragm* (as ribs 5b see at least Figure 10. Further, as shown in Figure 14, 15 the ribs 5a and 5b have inner surfaces parallel to body 7.)

**Claim 19**, AAPA in view of Akitaro teaches the limitations of Claim 18, and *the at least*

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*one wall member includes a frame surrounding the sound-wave emission side of the diaphragm (# 5a, Figure 7)*

**Claim 20**, AAPA in view of Akitaro teaches the limitations of Claim 17, and *the at least one wall member has a cross-sectional shape that is substantially the same as a shape of a rim of the sound-wave emission surface of the diaphragm* (as concentrically circular ribs 5b which is same as the circular fitting portion 2 of the diaphragm. See at least Figure 6)

**As to Claim 21**, AAPA in view of Akitaro teaches the limitations of Claim 17, and *the at least one wall member includes a plurality of wall members that are arranged concentrically with respect to a center of the diaphragm* ( as ribs 5b as shown in Figure 10)

**As to Claim 22**, AAPA in view of Akitaro teaches the limitations of Claim 17, and also shows in Figure 18, 19 ribs 5b extends on the body 7 towards the fitting portion 8. See at least page 5 lines 85-100), but do not explicitly teach

*a height of the at least one wall member is substantially the same as a maximum amplitude of the diaphragm*. However, the examiner considers that it would have been obvious matter of design choice to provide ribs with similar height configuration to the maximum amplitude of the diaphragm because it has been held that changing the size

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is a matter of obvious design choice to a person of ordinary skill in the art. See at least *In re Dailey*, 149 USPQ 47.

**As to Claim 23**, AAPA in view of Akitaro teaches the limitations of Claim 17, and *the cabinet has a substantially rectangular box-shaped configuration* ( as cabinet 2, Figure 10 in AAPA)

**As to Claim 24**, AAPA teaches *a speaker unit comprising* ( 1, Figure 11) *comprising: a cabinet including a surface having an opening therein* ( Figure 11, # 2 , page 1 [0005]); *a speaker* ( woofer 3, Figure 11) *attached to an inner side of the surface and aligned with the opening* ( as speaker 3 attached to the duct 10 which extends inwardly from the front panel of the cabinet 2. See at least page 1 [0005]); *wherein the speaker includes:*

*a diaphragm arranged to vibrate in a direction extending along a surface of the speaker so as to emit sound waves in a vibration direction of the diaphragm;* ( diaphragm 6 vibrating back and forth. See at least Figure 11, page 1 lines 12-19 in applicant's specification) , but do not explicitly teach:

*a plurality of tubular elements touching and arranged side by side on a sound-wave emission side of the diaphragm, each of the plurality of tubular elements having an inner surface extending substantially parallel to a vibration direction of the diaphragm;*  
*wherein*

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*the plurality of tubular elements and the diaphragm are secured to each other, and the plurality of tubular elements vibrate along with the vibration of the diaphragm.*

However, Akitaro in related field ( Speaker) teaches *a plurality of tubular elements touching and arranged side by side on a sound- wave emission side of the diaphragm, ( as radial ribs 5a and concentrically circular ribs 5b provided on body 7 as shown in Figure 13. Further, each of the plurality of tubular elements having an inner surface extending substantially parallel to a vibration direction of the diaphragm ( as shown in Figure 14, 15 the ribs 5a and 5b have inner portion parallel to the body 7) ; wherein the plurality of tubular elements( ribs 5a and 5b) and the diaphragm( diaphragm Figure 13, 14, 15 with body 7 and fitting portion 8) are secured to each other, and the plurality of tubular elements vibrate along with the vibration of the diaphragm.* Since Akitaro teaches the ribs 5a and 5b are provided on the body 1 of the diaphragm, it is obvious that the ribs are integrally formed with the diaphragm and therefore secured to the diaphragm, thus vibrating along with the vibration of diaphragm). At the time of invention, it would have been obvious to one of ordinary skill in the art to include ribs onto the body of the diaphragm so as to provide improve tone quality of the reproduced sound. See at least Akitaro on page 4 lines 41

**As to Claim 25,** AAPA in view of Akitaro teaches the limitations of Claim 24, and also shows in Figure 18, 19 ribs 5b extends on the body 7 towards the fitting portion 8. See at least page 5 lines 85-100), but do not explicitly teach

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*a height of the at least one wall member is substantially the same as a maximum amplitude of the diaphragm.* However, the examiner considers that it would have been obvious matter of design choice to provide ribs with similar height configuration to the maximum amplitude of the diaphragm because it has been held that changing the size is a matter of obvious design choice to a person of ordinary skill in the art. See at least *In re Dailey*, 149 USPQ 47.

**As to Claim 26**, AAPA in view of Akitaro teaches the limitations of Claim 24, and *the cabinet has a substantially rectangular box-shaped configuration* ( as cabinet 2, Figure 10 in AAPA)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUNITA JOSHI whose telephone number is (571)270-7227. The examiner can normally be reached on Monday thru Friday 8.00AM -- 5.00P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 5712727499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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*/SUNITA JOSHI/*

*Examiner, Art Unit 2614*

*/Brian Ensey/*

*Primary Examiner, Art Unit 2614*

*July 16, 2010*